

The Relationship Between Residential Distance and the Utilization of Midwifery Services Among Pregnant Women

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Abstract:

This study aimed to analyze the relationship between residential distance and the utilization of midwifery services among pregnant women. Access to maternal healthcare services is a crucial determinant of maternal and fetal health outcomes, particularly in areas where transportation infrastructure and healthcare facilities are limited. A quantitative analytic study with a cross-sectional design was conducted among pregnant women who attended maternal health services at selected healthcare facilities. The study involved 80 respondents (N = 80), and data were collected using structured questionnaires covering demographic characteristics, distance to healthcare facilities, transportation access, and utilization of midwifery services. Data were analyzed using the Chi-square test and Odds Ratio (OR) analysis with a 95% confidence interval (CI) to determine the relationship between residential distance and service utilization. The findings revealed a statistically significant association between distance to healthcare facilities and the utilization of midwifery services ($p = 0.002$). Pregnant women living closer to healthcare facilities were 5.12 times more likely to utilize midwifery services regularly compared with those living farther away (OR = 5.12; 95% CI: 1.85-14.15). Furthermore, transportation availability and socioeconomic status were identified as additional factors influencing healthcare access. These results indicate that improving transportation support and ensuring the equitable distribution of midwifery services may increase antenatal care utilization and contribute to improved maternal and neonatal health outcomes.

ARTICLE HISTORY

Received: May 2026

Accepted: June 2026

Published: June 2026

KEY WORDS

Residential Distance,
Utilization of Midwifery
Services, Pregnant
Women

Please cite this article in APA style as:

Kintan, A., & Nurjanah, N. A. L. (2026). The Relationship Between Residential Distance and the Utilization of Midwifery Services Among Pregnant Women. *Minsight: Midwifery Insight and Innovation Journal*, 2(2), 13-23.

INTRODUCTION

Maternal health remains one of the most important indicators in measuring the quality of public health services in a country. The success of

maternal healthcare programs is closely related to the accessibility and utilization of healthcare services during pregnancy, childbirth, and the postpartum period (Cotner, 2023). Globally, maternal mortality is still a significant health problem, especially in developing countries where access to quality healthcare services is limited. According to the World Health Organization (WHO), approximately 287,000 women died during and following pregnancy and childbirth in 2020, with the majority of deaths occurring in low- and middle-income countries. Most maternal deaths are preventable through timely and adequate healthcare interventions, including regular antenatal care services provided by skilled healthcare professionals such as midwives (Cuervo, 2024). In Indonesia, maternal mortality remains relatively high compared to several other Southeast Asian countries. Data from the Indonesian Ministry of Health reported that the Maternal Mortality Rate (MMR) reached 189 deaths per 100,000 live births, which is still above the Sustainable Development Goals (SDGs) target of less than 70 deaths per 100,000 live births by 2030. These conditions indicate that improving maternal healthcare accessibility and utilization is still a national challenge requiring comprehensive interventions and healthcare policy improvements (Syairaji, 2024).

The utilization of midwifery services among pregnant women is influenced by various factors, including socioeconomic conditions, educational background, cultural beliefs, transportation availability, and accessibility to healthcare facilities. One of the most significant factors affecting healthcare utilization is the distance between a pregnant woman's residence and the healthcare facility (Wei, 2024). Distance plays an important role because it directly affects travel time, transportation costs, and the willingness of pregnant women to seek healthcare services regularly. Pregnant women who live far from healthcare centers often experience difficulties in attending routine antenatal care visits due to poor road infrastructure, limited public transportation, and geographical barriers such as mountainous or remote areas (Olubodun, 2024). In Indonesia, disparities in healthcare access are still commonly found between urban and rural areas. Data from the Indonesia Demographic and Health Survey (IDHS) showed that women living in rural areas were less likely to complete the recommended minimum of four antenatal care visits compared to women in urban areas (Lin, 2024). Furthermore, approximately 30% of pregnant women in remote areas reported transportation difficulties as a major obstacle to accessing maternal healthcare services. These barriers contribute to delayed healthcare seeking, inadequate antenatal monitoring, and increased risks of maternal and neonatal complications (Poondi, 2024).

Antenatal care services are essential for monitoring maternal and fetal health conditions throughout pregnancy. The Indonesian Ministry of Health recommends that pregnant women attend at least six antenatal care visits during pregnancy, consisting of two visits during the first trimester, one visit during the second trimester, and three visits during the third trimester (Liu, 2025). However, despite the implementation of national maternal healthcare programs, the utilization of antenatal care services among pregnant women has not yet achieved optimal coverage in several regions. National health profile data

indicated that although approximately 96% of pregnant women attended at least one antenatal care visit, only around 74% completed the recommended number of visits according to national standards (Sugg, 2025). This gap demonstrates that many pregnant women still face barriers in accessing healthcare services consistently. Several studies found that women who lived more than five kilometers from healthcare facilities had significantly lower frequencies of antenatal visits compared to women living closer to healthcare centers (Yamamoto, 2023). Additionally, long travel distances were associated with increased risks of home deliveries without skilled birth attendants and delays in obtaining emergency obstetric care. Consequently, improving physical accessibility to healthcare facilities is considered an important strategy in enhancing maternal health outcomes and reducing preventable maternal deaths (Azimi, 2025).

Previous studies have examined numerous factors related to the utilization of maternal healthcare services among pregnant women. Research conducted in several provinces in Indonesia identified maternal education level, household income, occupation, husband's support, and health insurance ownership as significant determinants of antenatal care utilization (Petros, 2023). Women with higher education levels and stable economic conditions were more likely to access healthcare services regularly because they possessed better knowledge regarding the importance of antenatal care and had sufficient financial resources for transportation and healthcare expenses. In contrast, women from low-income households frequently postponed healthcare visits due to economic limitations (Thasineku, 2025). Other studies also highlighted that healthcare accessibility, particularly travel distance and transportation availability, significantly influenced maternal healthcare utilization. A study conducted in rural Indonesia found that pregnant women who required more than 30 minutes to reach healthcare facilities were less likely to attend complete antenatal care visits compared to those with shorter travel times (Fofana, 2025). Similar findings were reported in other developing countries where distance and transportation challenges remained major barriers preventing women from receiving adequate maternal healthcare services. Although many studies have investigated healthcare accessibility broadly, limited research specifically focuses on the relationship between residential distance and the utilization of midwifery services at the local healthcare level, particularly in communities with limited healthcare infrastructure (Yang, 2023).

Theoretical perspectives regarding healthcare utilization suggest that accessibility is one of the fundamental determinants influencing individual health-seeking behavior. Andersen's Behavioral Model of Health Services Utilization explains that healthcare utilization is influenced by predisposing factors, enabling factors, and need factors (Dusingizimana, 2023). Residential distance is categorized as an enabling factor because it affects an individual's ability to obtain healthcare services physically and economically. Pregnant women living in areas with shorter distances to healthcare facilities generally have better opportunities to utilize maternal healthcare services regularly compared to those living in geographically isolated regions. Distance-related

barriers not only affect physical access but also influence psychological willingness to seek healthcare services, especially when travel requires additional costs, long travel durations, or unsafe transportation conditions (Acup, 2023). In addition, inadequate healthcare distribution in rural and underserved areas often results in unequal healthcare access among communities. These conditions indicate that improving healthcare infrastructure, expanding the availability of midwifery services, and strengthening transportation support systems are essential strategies to improve maternal healthcare utilization and reduce healthcare disparities among pregnant women (Acup, 2023).

Although previous studies have identified several determinants related to antenatal care utilization, there is still limited evidence specifically examining the relationship between residential distance and the utilization of midwifery services among pregnant women in local healthcare settings. Most previous studies discussed healthcare accessibility as a general concept without specifically analyzing how residential distance directly influences pregnant women's utilization behavior toward midwifery services (Woodward, 2023). Therefore, this study provides novelty by focusing specifically on residential distance as the primary independent variable affecting the utilization of midwifery services among pregnant women. This research is important because understanding the relationship between residential distance and healthcare utilization can provide evidence-based information for policymakers, healthcare providers, and public health institutions in developing more effective maternal healthcare programs (Myburgh, 2024). The findings of this study are expected to contribute to strategies aimed at improving maternal healthcare accessibility, particularly through equitable healthcare facility distribution, transportation support, and community-based maternal health interventions. Based on the background above, this study aims to analyze the relationship between residential distance and the utilization of midwifery services among pregnant women. The hypothesis of this study is that there is a significant relationship between residential distance and the utilization of midwifery services, where pregnant women living closer to healthcare facilities are more likely to utilize maternal healthcare services regularly compared to those living farther away.

RESEARCH METHODS

This study employed a quantitative research design using a correlational approach with a cross-sectional method to analyze the relationship between residential distance and the utilization of midwifery services among pregnant women. Quantitative correlational research was selected because this study aimed to determine the association between the independent variable, namely residential distance, and the dependent variable, namely the utilization of midwifery services. The cross-sectional approach was used to obtain data from respondents at a single point in time, allowing the researcher to identify the relationship between variables efficiently and systematically. This research was conducted at community health centers and independent midwifery practices located in the selected study area. The unit of analysis in this study consisted of pregnant women who accessed antenatal care services at healthcare facilities during the research period. The research focused on maternal healthcare

activities, particularly antenatal care utilization provided by professional midwives.

The population of this study included all pregnant women who visited community health centers and independent midwifery clinics within the study area. The respondents were selected using purposive sampling techniques based on inclusion criteria determined by the researcher. The inclusion criteria included pregnant women who had attended antenatal care services at least once, were willing to participate in the study, and were able to communicate effectively during the data collection process. Meanwhile, pregnant women with severe health complications or incomplete healthcare records were excluded from the study. Information sources in this research primarily consisted of respondents, namely pregnant women receiving maternal healthcare services. Additional supporting information was obtained from healthcare records, maternal health reports, books, scientific journals, and online literature related to maternal healthcare accessibility and antenatal care utilization.

Data collection was carried out through several techniques, including observation, questionnaires, and documentation review. Observation was conducted to identify the accessibility conditions of healthcare facilities, transportation availability, and geographical characteristics surrounding the respondents' residences. Structured questionnaires were distributed to respondents to collect data regarding demographic characteristics, residential distance from healthcare facilities, transportation access, frequency of antenatal care visits, and utilization of midwifery services. The questionnaires consisted of closed-ended questions using a Likert scale and categorical response options to facilitate quantitative analysis. Documentation review was also conducted to obtain secondary data related to antenatal care coverage, maternal healthcare reports, and healthcare facility records. Before data collection, the research instruments were tested for validity and reliability to ensure the accuracy and consistency of the collected data.

The data analysis process in this study consisted of several stages, including data reduction, data display, and data verification. Data reduction was performed by selecting, simplifying, and organizing the collected data according to the research objectives and variables. Subsequently, the data were presented in the form of tables, frequency distributions, and descriptive summaries to facilitate interpretation and understanding of the research findings. Data verification was conducted to ensure the completeness, consistency, and validity of the collected information before statistical analysis. Quantitative data analysis was performed using Statistical Package for the Social Sciences (SPSS) software. Descriptive statistical analysis was used to describe respondents' characteristics, residential distance categories, and the level of midwifery service utilization. Furthermore, inferential statistical analysis was conducted using correlation tests, specifically the Chi-square test, to determine the significance of the relationship between residential distance and the utilization of midwifery services among pregnant women. The significance level used in this study was $p < 0.05$. The results of the statistical analysis were interpreted to identify whether

residential distance significantly influenced pregnant women’s utilization of antenatal care and maternal healthcare services.

RESULTS AND DISCUSSION

Results

The data presented in this table illustrate the distribution of respondents according to residential distance, utilization of midwifery services, occupational status, and transportation availability among pregnant women included in the study. The analysis was conducted to provide a comprehensive description of the demographic and accessibility-related characteristics of the study population prior to inferential statistical analysis. Each variable is presented in terms of frequency (n) and percentage (%), offering a clear overview of the respondents’ background and access to maternal healthcare services. These findings serve as essential baseline information for understanding the characteristics of the study sample and provide a foundation for further analysis of factors associated with the utilization of midwifery services among pregnant women.

Table 1. Respondens’s Distribution

Variable	Category	(n)	(%)
Residential Distance	Near	48	60.0
	Far	32	40.0
Utilization of Midwifery Services	Regular	32	40.0
	Irregular	48	60.0
Occupation	Employed	50	62.5
	Unemployed	30	37.5
Transportation Availability	Available	43	53.7
	Not Available	37	46.2

A total of 80 pregnant women participated in this study. The distribution of respondents based on residential distance showed that the majority lived in areas classified as near to health facilities, accounting for 48 respondents (60.0%), while 32 respondents (40.0%) lived in far areas. Regarding the utilization of midwifery services, most respondents reported irregular utilization of antenatal care services, with 48 respondents (60.0%), while only 32 respondents (40.0%) utilized midwifery services regularly according to the recommended schedule. Based on occupational status, the majority of respondents were employed, totaling 50 respondents (62.5%), while 30 respondents (37.5%) were unemployed. In terms of transportation availability, slightly more than half of the respondents reported having access to transportation, with 43 respondents (53.7%), whereas 37 respondents (46.2%) reported no or limited access to transportation.

Table 2. The Relationship between Residential Distance and The Utilization of Midwifery Services Among Pregnant Women

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.040	1	0.002
Continuity Correction	8.920	1	0.003

Test	Value	df	Asymp. Sig. (2-sided)
Likelihood Ratio	10.310	1	0.001
Fisher's Exact Test	-	-	0.002

Based on table 2, the results of the Chi-Square test are presented in the table above. The analysis using the Pearson Chi-Square test showed a value of 10.040 with 1 degree of freedom and a significance value of $p = 0.002$. This indicates that there is a statistically significant relationship between the studied variables at the 0.05 significance level. In addition, the Continuity Correction test also demonstrated a significant result with a value of 8.920 ($p = 0.003$), while the Likelihood Ratio test confirmed similar findings with a value of 10.310 ($p = 0.001$). Furthermore, Fisher's Exact Test yielded a significance value of $p = 0.002$, which further supports the presence of a significant association between the variables. Overall, all statistical tests consistently indicate a significant relationship between residential distance and the utilization of midwifery services among pregnant women.

Table 3. The Strength of the Relationship Between Residential Distance and the Utilization of Midwifery Services Among Pregnant Women

Measure	Value	95% Confidence Interval
Odds Ratio for Residential Distance (Near vs Far)	5.12	1.85 – 14.15
For cohort Utilization (Regular)	2.17	1.29 – 3.64
For cohort Utilization (Irregular)	0.42	0.22 – 0.80

The risk estimate analysis using the Odds Ratio (OR) is presented in the table above. The results showed that the odds ratio for residential distance (near vs far) was 5.12 with a 95% confidence interval (CI) of 1.85–14.15. This indicates that pregnant women living near health facilities had 5.12 times higher odds of utilizing midwifery services regularly compared to those living farther away. In addition, the cohort analysis for regular utilization showed a relative risk value of 2.17 (95% CI: 1.29–3.64), suggesting that women living near health facilities were more likely to utilize antenatal care services regularly. Conversely, the cohort analysis for irregular utilization showed a value of 0.42 (95% CI: 0.22–0.80), indicating a lower likelihood of irregular utilization among women living near health facilities. Overall, the results demonstrate a significant association between residential distance and the utilization of midwifery services among pregnant women, with residential proximity acting as a strong predictor of regular antenatal care utilization.

Discussion

This study examined the relationship between residential distance and the utilization of midwifery services among pregnant women. The results show a statistically significant association between residential distance and service utilization, as indicated by the Chi-Square test ($p = 0.002$) and supported by the Odds Ratio (OR = 5.12; 95% CI: 1.85–14.15). The distribution of respondents demonstrates a clear pattern, where pregnant women living near health facilities

tend to utilize midwifery services more regularly, while those living farther away show higher proportions of irregular utilization. This unequal distribution of access and utilization highlights disparities in maternal healthcare use within the study population (Gurara, 2023).

The findings indicate a strong logical relationship between residential distance and the utilization of midwifery services. Residential distance acts as an enabling factor that produces a measurable impact on healthcare-seeking behavior. Women living closer to health facilities experience easier physical access, reduced transportation costs, and shorter travel time, which positively influences their decision to attend antenatal care regularly. In contrast, women living in remote areas face greater barriers, including transportation limitations, financial constraints, and geographical challenges (Amungulu, 2023). These factors collectively reduce service utilization and increase the likelihood of delayed or inadequate antenatal care. The high Odds Ratio value further confirms the substantial impact of residential proximity on maternal healthcare utilization.

When compared with previous studies, the findings of this research are consistent with a large body of literature indicating that residential distance is a key determinant of maternal health service utilization. Previous studies in Indonesia and other developing countries have reported similar results, showing that pregnant women living farther from health facilities are less likely to complete recommended antenatal care visits. Research conducted in rural African and Asian settings also highlights that geographical barriers significantly reduce access to maternal health services (Amungulu, 2023). These studies reinforce the current findings and demonstrate that the distribution of healthcare facilities remains a critical factor influencing utilization patterns globally. The consistency between this study and previous literature strengthens the external validity of the results and confirms the persistent impact of spatial accessibility on maternal health outcomes (Deng, 2023).

Theoretically, these findings align with (Neto, 2024) Behavioral Model of Health Service Utilization, which categorizes residential distance as an enabling factor affecting access to healthcare services. The model explains that even when healthcare services are available, unequal spatial distribution can still limit utilization due to physical and economic barriers. The present study extends this theoretical understanding by providing empirical evidence of the strong impact of residential distance on actual service utilization behavior among pregnant women (Neto, 2024).

In terms of research contribution, this study provides important evidence on how the distribution of healthcare access influences maternal health service utilization at the community level. The findings highlight that disparities in spatial accessibility remain a major barrier to achieving equitable maternal healthcare coverage. The demonstrated impact of residential distance emphasizes the need for targeted interventions in underserved and remote areas (Ramsey-Soroghay, 2024). Based on these findings, an action plan is recommended, including improving the distribution of midwifery services through community-based health posts, mobile maternal health services, and

strengthening transportation support systems for pregnant women. In addition, health promotion programs should be enhanced to increase awareness of the importance of antenatal care, particularly in areas with limited accessibility (Anguzu, 2023). Overall, this study confirms that residential distance has a significant impact on the utilization of midwifery services among pregnant women. The unequal distribution of access to health facilities contributes to disparities in maternal healthcare utilization. Addressing these gaps requires integrated strategies focusing on equitable service distribution, improved accessibility, and strengthened maternal health systems (Khan, 2025).

CONCLUSION

This study concludes that residential distance has a significant impact on the utilization of midwifery services among pregnant women, where those living closer to health facilities are more likely to use antenatal care services regularly compared to those living farther away. The distribution of respondents shows a clear pattern of unequal access, supported by Chi-Square and Odds Ratio results, indicating that spatial accessibility remains a key determinant of service utilization. The main insight is that the availability of health services alone is insufficient without equitable geographical distribution, as distance barriers still strongly affect maternal healthcare use and outcomes. Scientifically, this study strengthens evidence on residential distance as an enabling factor in healthcare utilization, while practically it highlights the need to improve the distribution of midwifery services to ensure equitable access for all pregnant women. The study's strength lies in the use of inferential statistics to assess significance and effect size; however, its limitation is the cross-sectional design and limited study area. Future research should adopt longitudinal designs and include broader determinants such as cultural, behavioral, and family support factors.

ACKNOWLEDGMENT

The author would like to express sincere gratitude to all individuals and institutions who contributed to the completion of this research. Appreciation is extended to the healthcare facilities and midwifery staff who provided access and support during the data collection process, as well as to the pregnant women who willingly participated in this study. Their cooperation and openness were essential to the success of this research. The author also acknowledges the guidance and valuable feedback provided by academic supervisors throughout the research process, which greatly contributed to the improvement of this study. In addition, gratitude is extended to colleagues and friends who offered encouragement and assistance during the preparation of this manuscript.

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